

ancestry to account for this fact. The authors are compelled to the belief that there was once a time when Rodriguez, Mauritius, Bourbon, Madagascar, and probably the Seychelles were connected by dry land, and that that time is sufficiently remote to have permitted the descendants of the original inhabitants of this now submerged continent to become modified into the many different representative forms which are now known. Whether this result can have been effected by the process of "Natural Selection" must remain an open question; but that the Solitaire of Rodriguez, and the Dodo of Mauritius, much as they eventually came to differ, sprang from one and the same parent stock, seems a deduction so obvious, that the authors can no more conceive any one fully acquainted with the facts of the case hesitating about its adoption than that he can doubt the existence of the Power by whom these species were thus formed.

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### MISCELLANEOUS.

*Note on the Existence of a large Pelican in the Turbaries of England.*

By A. MILNE-EDWARDS.

WE know very little about the birds of which the remains are found in turbaries, and hitherto their precise determination has never been attempted. There would nevertheless be much interest in such an examination, and in seeking what species of this class inhabited our countries at the period when the beaver, the urus, the aurochs, and the gigantic stag lived in great numbers in the forests and on the banks of the watercourses. I have recently been able to convince myself that investigations of this kind may furnish important results.

The turbaries of the neighbourhood of Cambridge have furnished a considerable number of the bones of birds, which Mr. Seeley and Prof. Alfred Newton have been kind enough to submit to my examination. I was astonished to find among these remains the bone of a pelican. This bone, which belongs to the Woodwardian Museum, was obtained from the turbaries of the marshy districts (fenlands) which cover the northern parts of the county of Cambridge. These deposits have been studied with much care by Mr. Seeley, who, with his usual obligingness, has furnished me with valuable information upon the subject.

Beneath peat in course of formation, of variable thickness, and containing some freshwater shells and existing plants, there is a clay filled with marine shells and containing some remains of marine mammalia. This clay rests upon a bed of peat in which the trunks of trees are met with, some of them still placed vertically. It is in this layer that the bones of terrestrial animals occur; and although the exact position where the humerus of the pelican was collected was not noticed, its colour and nature prove that it is derived from this peaty deposit. The mammalia indicated as occurring in it belong to the following species:—*Bos frontosus*, *B. primigenius*, *Cervus megaceros*, *Ursus arctos*, *Lutra vulgaris*, *Canis lupus*, *Cervus*

*elaphus*, *C. capreolus*, *Sus scrofa*, and *Castor europæus*. Finally, I have been able to recognize several species of birds, such as the swan (*Cygnus fesus*), the wild duck (*Anas boschas*), the teal (*Anas querquedula*), the crested grebe (*Podiceps cristatus*), the bittern (*Ardea stellaris*), and the coot (*Fulica atra*). These birds still occur in great abundance on the east coast of England. Their presence in the turbaries, therefore, cannot surprise us; but this is not the case with the pelican, which does not belong to the British fauna; for the few individuals which have been met with there had been carried by the winds very far from the regions which they usually inhabit. Now the existence of our pelican in the peaty deposits of Cambridge cannot be explained in this way. The bone in question is derived, in fact, from a young bird, consequently too weak to undertake a distant journey. A glance at the fossil the history of which I am giving is sufficient to prove that the work of ossification was not completed, as is indicated by the state of the articular extremities. We cannot, therefore, think for one moment that this bird has quitted Africa or the south of Russia, and, being turned from its course by atmospheric currents, has come to die in England upon the edge of the marshes in which the peaty layers in which it was discovered were being deposited. Such an explanation as this is inadmissible; and this pelican was evidently a native of that country.

The humerus here referred to is of very considerable dimensions. Its articular extremities are imperfect; it is not, therefore, entire, and evidently with increased age it would have become considerably elongated. Nevertheless it measures about 37 centimetres. Knowing the length of the arm-bone, we may easily deduce from it that of the entire wing; for in the pelicans the proportions of the various bones which form the solid framework of the anterior limb vary very little. Thus, if we represent the length of the humerus of these birds by 100, that of the forearm would be 113, and that of the hand 78. Consequently, assuming that in our pelican from the turbaries the proportions of these bones were the same, the forearm would have measured 42 and the hand 29 centimetres, which brings the whole length of the wing without its feathers to 1.08 metre.

I have compared the fossil from the Cambridge turbaries with several arm-bones of adult pelicans belonging to different species, such as *Pelecanus onocrotalus*, *P. crispus*, *P. philippinensis*, and *P. thagus*, but I have not found one the dimensions of which were the same; even the largest *onocrotali* scarcely approach it. Must we therefore regard the bird from the turbaries as a distinct species, of larger size? This supposition seems a very probable one; but it would perhaps be premature to attempt at present to establish a new specific type; and before inscribing it upon our scientific catalogues, it seems to me that it will be more prudent to wait until further researches have led to the discovery of some parts of the skeleton of adult birds, which may make known to us more accurately the proportions of our British pelican.—*Comptes Rendus*, June 22, 1868, pp. 1242–1244.